

# NewsRelease



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**Langley Research Center**  
Hampton, Virginia 23681-2199

Bob Allen  
(757) 864-6176

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## **MARS SPACECRAFT TO LAND DEC. 3**

### **Langley Aeroshell Design Helps Probe for Water on Mars**

When the Mars Polar Lander and its passengers, the Deep Space 2 microprobes, enter the Martian atmosphere later this week, it will be with the help of engineering know-how developed at the NASA Langley Research Center in Hampton, Va.

Langley engineers helped verify the design of the Mars Polar Lander's heat shield, but most of their task on this mission centered around the microprobes. Langley researchers worked closely with their counterparts at the Jet Propulsion Laboratory in Pasadena, Calif., to design and test the aeroshells that will shield the two microprobes during their entry and descent into Mars' atmosphere. The heat shields will protect the spacecraft from the remarkable stresses encountered during their 14,000-mile-per-hour atmospheric entry and will enable them to align themselves properly to the surface for impact.

The basketball-sized microprobes weigh about eight pounds each. They will detach from the Lander, free-fall through Mars' atmosphere, and crash land at more than 400 miles per hour without the aid of parachutes, rockets, or airbags. As the microprobes slam into Mars, experiencing forces up to 80,000 times Earth's gravity, the aeroshell will shatter. The impact's force will bury the microprobes up to three feet below the surface, making them NASA's first planetary penetrators.

The embedded microprobes will use a tiny drill to take subsurface samples of Martian soil. These samples will be heated, and a laser will be aimed through the gases that boil off to look for signs of water vapor. The microprobes will relay their findings back to Earth via the Mars Global Surveyor spacecraft, which already is orbiting Mars. The results of this experiment could hold the key to answering questions about past or present life on Mars.

The Mars Polar Lander spacecraft was launched January 3, 1999, from Cape Canaveral, Fla.

Members of the Langley teams that designed and tested the aeroshell are available for interviews. B-roll with animation and interview clips is also available.

More information on the Mars Polar Lander mission is available on the Internet at:  
<http://mars.jpl.nasa.gov/msp98/>.

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